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(54) Title: INDUCIBLE SITE-DIRECTED MUTAGENESIS THROUGH CONDITIONAL GENE RESCUE

(57) **Abstract:** The present invention relates to a conditionally inducible site-directed mutant cell, comprising a mutated allele of a gene; wherein said allele comprises a mutation that was introduced by using a suitable mutagenesis technique, a rescue allele of said mutated gene that can be conditionally inactivated, wherein said mutation in said mutated allele of said gene interferes with survival and/or causes, an adverse phenotype, such as temporal and/or local phenotypes, such as cell cycle-specific, cell-type specific, tissue-specific, protein-expression specific, tissue-development specific, organ-specific, organ-development-specific and/or embryonic lethal phenotypes. According to further aspects thereof, the present invention relates to a conditionally inducible site-directed mutant cell culture, tissue, organ, or non-human embryo, comprising a cell and a respective non-human organism, in particular a genetically deficient or Knock-outmammal, -rodent, -nematode, -fish, -plant or -insect. Finally the invention provides a method for inducible site-directed mutagenesis through conditional gene rescue, either in vitro or in vivo.